PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 19 December 2000 (19.12.00)	
International application No. PCT/AU00/00459	**Applicant's or agent's file reference** 2153420:GN
International filing date (day/month/year) 12 May 2000 (12.05.00)	**Priority date** (day/month/year) 14 May 1999 (14.05.99)
Applicant VERSCHUUR, Mark	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

01 November 2000 (01.11.00)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer A. Karkachi
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

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NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

To:

FREEHILLS CARTER SMITH BEADLE
Level 32
MLC Centre
Martin Place
Sydney, NSW 2000
AUSTRALIE

Date of mailing (day/month/year)
19 December 2000 (19.12.00)

Applicant's or agent's file reference
2153420:GN

IMPORTANT NOTIFICATION

International application No.
PCT/AU00/00459

International filing date (day/month/year)
12 May 2000 (12.05.00)

1. The following indications appeared on record concerning:

[ ] the applicant [ ] the inventor [X] the agent [ ] the common representative

Name and Address

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Sydney, NSW 2000
Australia

State of Nationality:
State of Residence:
Telephone No.: 9225 5777
Facsimile No.: 9225 4000
Teleprinter No.:

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

[ ] the person [X] the name [ ] the address [ ] the nationality [ ] the residence

Name and Address

FREEHILLS CARTER SMITH BEADLE
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MLC Centre
Martin Place
Sydney, NSW 2000
Australia

State of Nationality:
State of Residence:
Telephone No.: 612 9225 5777
Facsimile No.: 612 9322 4000
Teleprinter No.:

3. Further observations, if necessary:

The agent's new address on the Demand has been considered as a change under Rule 92bis. In case of disagreement, the International Bureau should be notified immediately.

4. A copy of this notification has been sent to:

[X] the receiving Office
[ ] the International Searching Authority
[X] the International Preliminary Examining Authority
[ ] the designated Offices concerned
[X] the elected Offices concerned
[ ] other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

A. Karkachi

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2153420:GN	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. **PCT/AU 00/00459**	International filing date *(day/month/year)* 12 May 2000	Priority Date *(day/month/year)* 14 May 1999

International Patent Classification (IPC) or national classification and IPC

Int. Cl.[7] A61L 2/26, 2/07, 2/20, B65D 21/08, B65B 55/14

Applicant

1. FAIRMONT MEDICAL PRODUCTS PTY LTD et al

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of **6 sheets**, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

I	☒	Basis of the report
II	☐	Priority
III	☒	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	☐	Lack of unity of invention
V	☒	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	☐	Certain documents cited
VII	☐	Certain defects in the international application
VIII	☒	Certain observations on the international application

Date of submission of the demand	Date of completion of the report
01 November 2000	13 September 2001
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer GRANT MCNEICE Telephone No. (02) 6283 2055

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/AU 00/00459

I. Basis of the report

1. With regard to the **elements** of the international application:*

[X] the international application as originally filed.

[ ] the description, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of .

[ ] the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages , received on with the letter of .

[ ] the drawings, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of .

[ ] the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of .

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:

[ ] the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

[ ] the language of publication of the international application (under Rule 48.3(b)).

[ ] the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, was on the basis of the sequence listing:

[ ] contained in the international application in written form.

[ ] filed together with the international application in computer readable form.

[ ] furnished subsequently to this Authority in written form.

[ ] furnished subsequently to this Authority in computer readable form.

[ ] The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

[ ] The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. [ ] The amendments have resulted in the cancellation of:

[ ] the description, pages

[ ] the claims, Nos.

[ ] the drawings, sheets/fig

5. [ ] This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report*

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be nonobvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos.: **23-29 and 33 as appended to any of claims 23-29**

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination *(specify)*:

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claim Nos. **23-29 and 33 as appended to any of claims 23-29**

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	**3, 6, 7, 11, 27, 30-33 and 35-37**	**YES**
	Claims	**1,2,4, 5,8-10,12-23,26,28,29 and 34**	**NO**
Inventive step (IS)	Claims	**3, 6, 7, 11, 30-33 and 35-37**	**YES**
	Claims	**1, 2, 5, 8-10, 12-23, 26-29 and 34**	**NO**
Industrial applicability (IA)	Claims	**1-22 and 30-37**	**YES**
	Claims		**NO**

2. Citations and explanations (Rule 70.7)

NOVELTY (N): Claims 1, 2, 4, 5, 8-10, 12-23, 26, 28, 29 and 34.

D1: CA 2230264 discloses a plastic collapsible container that would be suitable for sterilising an object, having two ends, the first being closed and the second open. The second end is covered by an airtight lid. Between the 2 ends there is an accordion wall that collapses to move the 2 ends together. The concertina is equivalent to corrugation (claim 8). The second end is closed (claim 10). The scope of "relatively rigid" in claim 12 is not clear. The plastic of the citation is "a resilient material which deforms with a pressure from top to bottom." The concertina walls may be formed as one or two joined portions as in claims 13 to 16. The deformable or collapsible portion folds downwardly as in claim 34.

D2: US 4773458 discloses similar features to D1 except that it has been made in 2 portions, both portions being folded but the second portion being more easily collapsible. The container is relatively enlarged at the first end as in claim 9. It discloses an elongated par and an enlarged part depending from the elongated part, the first part overlapping some of the second part, having an open end in the outwardly extending part, and a large opening in the enlarged diameter portion, the container being separable into two parts to expose the object, as in claims 17 to 23. It also discloses at column 4, lines 60 to 64, a vapour permeable portion by way of the conventional one way valve 62, which is vapour permeable in the cap in the first end. Claim 2, 5 and 26 to 29 are thereby disclosed.

D3: FR 2654413 discloses similar features to D1.

D4: JP 08230882 discloses similar features to D1. Its screw top cap, 3, is a vapour permeable portion in the first end, as in D2.

D5: JP 08091339 discloses similar features to D1.

D6: US 4362241 disclosed a device for disinfecting medical objects, being an envelope of flaccid material permitting deformation. In Fig 2 of this citation, the container has two ends with an entry at one end (see column 3). The container is relatively enlarged at the first end (disclosing claim 9) with closed second end (claim 10).

D7: WO 94/26633 discloses a container suitable for sterilising an object with the first end having an opening, a second opposite end, a portion of the container being deformable for the two ends to move relative to each other. The container is relatively enlarged at the first end and closed at the second (discloses claims 9 and 10), the deformable portion being relatively rigid (claim 12), first and second portions joined to form the container (claim 13), the second portion including the deformable portion (claims 14 to 16 and 34) with an elongated and depending enlarged part (claims 17 to 19 and 21), adapted to be separated into two parts to expose the object (claim 23), the portion between the two parts

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

In claim 18, "deformed" should apparently read "deformable".

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of :

being "of least thickness" thereby adapted to be breakable (claims 24 to 26).

D8: AU 17399/95 discloses a container having the features of claims 1, 10, 12-16, 23, 26 and 34.

D9: WO 99/56454 has similar features to D2. This application was published after the priority date of the present application but has an earlier priority date.

INVENTIVE STEP (IS): Claims 1, 2, 4, 5, 8-10, 12-23, 26, 28, 29 and 34.

As for Novelty.

Claim 27. In light of each of D2-D5 and D8 there is no inventive step in having the closure means tamper proof or tamper evident as this is common general knowledge in the art.

INDUSTRIAL APPLICABILTY (IA): Claims 1-22 and 30-37 are all industrially applicable.

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WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : A61L 2/26, 2/07, 2/20, B65D 21/08, B65B 55/14

A1

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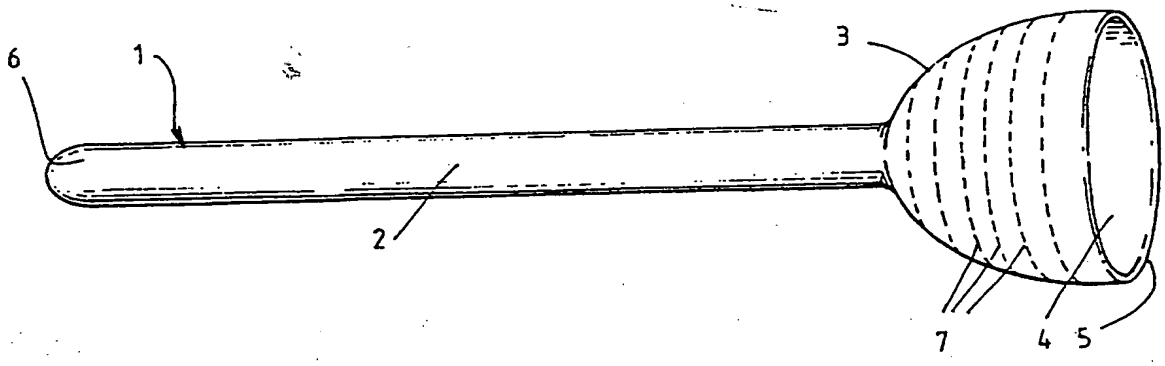
Published
With international search report.

(54) Title: STERILIZATION CONTAINER



(57) Abstract

A container (30) for use in sterilizing an object has a first end (35) and a second end (38). The container (30) is suitably sized to receive an endoscopic telescope (45) for sterilization. Once the endoscopic telescope (45) has been inserted into the container (30), a lid (46) having a vapour permeable section (47) is fitted to the container. The container and object are then sterilized, for example, by autoclaving. After sterilization, use of the container requires a non–sterile nurse in an operating theatre to push the ends (35, 38) together. A collapsible or deformable portion (42) collapses and the ends (35, 38) move closer together to thereby force the telescope (45) out of the container (30), where it can be removed by a sterile nurse.

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STERILIZATION CONTAINER

The present invention relates to a container for use in sterilizing an object and to a method for sterilizing an object. The apparatus and method of the present invention are particularly suitable for use in sterilizing medical and surgical equipment.

Surgical operations must be carried out under strict conditions of sterility to minimize infection risk in the patient. To this end, a sterile field is set up in the operating theatre around the patient. Any theatre staff, such as surgeons or nurses, who have to touch the patient during surgery must rigorously scrub and wear sterile surgical gloves. All instruments and equipment used in the surgery must also be sterile.

Surgical equipment is frequently supplied inside sterile packaging which ensures that the equipment inside the packaging is sterile and remains so whilst the packaging remains unopened. However, storage, handling and distribution of the packaging causes the outer surface of the packaging to become non-sterile. To account for this whilst maintaining the sterile field in the operating theatre, surgical teams include a non-sterile nurse who opens the packaging of pieces of surgical equipment and exposes the sterile equipment to a nurse within the sterile field. The nurse within the sterile field then removes the sterile equipment from the packaging. Provided that the non-sterile nurse does not touch the equipment, sterility of the sterile field is not compromised.

A number of pieces of medical and surgical equipment are re-usable. In order to re-use such equipment, it is necessary to sterilize the equipment before use in the next operation. Sterilization of medical and surgical equipment is commonly carried out in an autoclave in which steam at elevated pressure and a temperature of around 134°C sterilizes the equipment.

Although autoclaving is an effective sterilizing method, difficulties can arise when it is desired to sterilize delicate medical and surgical equipment. In particular a number of pieces of equipment are typically loaded into the autoclave at a time, which can lead to breakage of delicate equipment. Moreover, it can be difficult to maintain

sterility of the equipment when it is removed from the autoclave and stored for use in the next operation.

Other methods of sterilisation that are frequently used include exposing the medical apparatus to a sterilising gas, such as ethylene oxide or STERAD, or soaking in a cold sterilizing liquid.

Endoscopic or laparoscopic surgery, also commonly known as key-hole surgery, is become more wide spread. Endoscopic and laparoscopic techniques are low invasive techniques that can dramatically reduce the duration of stays in hospitals by patients. Endoscopic and laparoscopic techniques require the use of telescopes (hereinafter called "endoscopic telescopes" for convenience) to enable the surgeon to see the site of the surgery on a monitor. Endoscopic telescopes comprise an elongated body in the form of a thin tube having an enlarged housing at one end thereof, which housing contains optical components and allows coupling to a camera or video feed. The other end of the endoscopic telescope is inserted into the patient via an incision made in the patient's skin. The endoscopic telescope projects into the sterile field and hence the endoscopic telescope must be sterilized.

It is an object of the present invention to provide a method for and an apparatus for use in sterilizing an object such as a piece of medical or surgical equipment.

In one aspect, the present invention provides a method for sterilizing an object comprising placing the object into a container, the container having an opening through which the object is inserted, the container having at least a portion which is adapted to be collapsed or deformed, closing the opening with a vapour permeable closure and placing the container in a sterilizing environment for sufficient time to sterilize the object.

Preferably, the vapour permeable membrane is a water vapour permeable membrane.

Preferably, the vapour permeable membrane is also permeable to liquid water.

Preferably, the vapour permeable membrane is permeable to other liquids, such as sterilizing liquids.

Preferably the step of placing the container in a sterilizing environment includes the step of placing the container in an autoclave and operating the autoclave

for sufficient time to sterilize the object. Although autoclaving is the preferred sterilizing method, other sterilizing methods may be used. Such methods may include placing the container in a sterilizing fluid. In such cases, the closure should also be permeable to the sterilizing fluid.

The step of closing the opening of the container preferably comprises the step of affixing a vapour-permeable closure to a rim of the opening. The closure may be affixed to the rim of the opening by an adhesive. The closure may comprise any suitable vapour permeable material. Preferably, the material is also permeable to other fluids, such as gases. However, it is preferred that the closure material does not allow the passage of bacteria therethrough.

In another embodiment, the step of closing the opening comprises placing a lid or cover on or over the opening, which lid or cover includes at least a portion which is permeable to vapour. The lid or cover is preferably a tamper–evident lid or cover that can only be removed from the container in a tamper-evident manner. Such tamper-evident lids or covers are well known and will not be described further.

The closure material may comprise a microporous membrane. More preferably, the closure material comprises a paper or paper-based material. It will be appreciated that the closure material should be resistant to failure under the sterilizing conditions used. For example, a thermoplastic material that melts at a temperature below the temperature used in an autoclave is unsuitable for use in the present invention if autoclaving is to be used to obtain sterilization. A suitable membrane material could be TYVEK, a proprietary material manufactured by DuPont. This would be suitable for use in the STERAD system. Other materials could also be used.

By placing the object in a container and closing the opening in the container, the object is protected from damage by contact with other objects during sterilization by virtue of the object being protected by the container. The closure confines the object within the container and prevents the entry of bacteria into the container after sterilization is complete. Thus, the container also provides a convenient storage container that can maintain sterility of the object.

In another aspect, the present invention provides a container for use in sterilizing an object, the container being adapted to receive the object, the container

having a first end having an opening to allow positioning of the object in the container, a second end located generally opposite the first end and wherein at least a portion of the container is adapted to be collapsed or deformed whereby the first end and the second end are moved relatively towards each other.

Preferably, at least a portion of the container near the first end is collapsible or deformable whereby collapsing or deforming of the collapsible or deformable portion causes the first end to move relatively closer to the second end.

Preferably, the container includes an elongated portion for receiving an elongate object.

Preferably, the container is relatively enlarged at the open end. This allows easier insertion of the object into the container. It also enables the container to hold objects having a relatively enlarged part, for example, such as an endoscopic telescope. Preferably, the container is adapted to contain a piece of medical or surgical equipment, more preferably an elongated medical apparatus, most preferably an endoscopic telescopic.

Preferably, the opening in the first end of the container is sealable by a vapour-permeable closure. The vapour-permeable closure may be affixed to the rim of the opening in the first end to thereby close the opening. The vapour permeable closure may be removed from the open end by peeling. The vapour permeable closure may comprise a paper or paper-based material or a microporous material.

The vapour permeable membrane is preferably a water vapour permeable membrane. The vapour permeable membrane is preferably permeable to liquid water.

In another embodiment, the open end of the container may be closed after insertion of the object to be sterilized has been inserted therein by placing a lid or cap on the open end, which lid or cap includes a vapour-permeable portion. Preferably, the lid or cap is a screw-on lid or cap that has a threaded portion that co-operates with a complementary threaded portion formed on the container. Alternatively, the lid or cap may be a pop-on type.

The lid or cap is preferably provided with a tamper-proof seal or a tamper evident seal. It is especially preferred that the lid cannot be removed from the container after it has been fitted. If the closure is removed, it should be apparent that it

has been removed and that sterility has been compromised. Preferably, removal of the closure damages the closure such that it cannot be re-applied to the container.

The lid or cap may be provided with a vapour-permeable portion by forming the lid or cap with an opening and covering the opening with a vapour-permeable material. The vapour permeable material may comprise a paper or paper-based material or a microporous material. Alternatively, the lid or cap may be manufactured from a vapour-permeable material.

The second end of the container may be formed as a closed end. More preferably, the second end of the container is closed by a vapour permeable means. This allows air to circulate through the container after autoclaving to thereby assist in drying any condensed water inside the container. The vapour permeable means may be a paper or paper-based closure means or a microporous material. In embodiments where the second end is a closed end and is formed from the material of the container, one or more vapour-permeable windows may be provided in the container. Indeed, one or more vapour-permeable windows may be provided even if the second end has a vapour-permeable closure thereon.

In one embodiment of the present invention, the container comprises a first portion and a second portion joined together. The first portion may include the first end and the second portion may include the second end. The first and second portions are preferably formed from plastics material and may be joined by any suitable method, such as welding. The first portion may contain the deformable or collapsible portion, or the second portion may contain the deformable or collapsible portion. Alternatively, both the first portion and the second portion may contain a collapsible or deformable portion.

The container is most preferably designed for use in the sterilization of endoscopic telescopes. In this embodiment, the container has an elongated part into which the endoscopic telescope is inserted and an enlarged portion depending from the elongated part for holding the enlarged part of the telescope. It is preferred that the elongated part has the deformable or collapsible portion. This may be provided by having corrugations or flutes formed in the outer wall(s) of the elongated part. Other arrangements that lead to a collapsible or deformable portion may also be used.

In a most preferred embodiment of the container embodiment for use in sterilizing endoscopic telescopes, the container comprises a first part and a second, elongated part joined to the first part. The first part is of relatively enlarged diameter (with respect to the elongated part). The first part may include an outwardly projecting part having an open end that fits relatively snugly with the second, elongated part such that the outwardly projecting part of the first part overlaps with a part of the second elongated part. The overlapping parts may be joined together, eg, by welding (or by any other joining technique). In this fashion the overlapping parts may reinforce each other and provide greater strength to the elongated part of the container.

A part of the container may be provided with indicating means to indicate whether or not the container has been exposed to a sterilising environment. The indicating means may be a colour change portion that undergoes a colour change when exposed to the sterilising environment. The colour change may be caused by exposure to elevated temperature or the sterilising gas. Preferably, the indicating means forms part of the vapour permeable closure.

The container of the present invention provides a container for containing a piece of medical or surgical equipment during sterilization. The container protects the medical or surgical equipment from damage during sterilization. By closing the open end of the container with the vapour permeable closure, sterilization of the medical or surgical equipment can be achieved and the medical or surgical equipment can be stored in sterile conditions inside the container following sterilization. The container may include indication means to indicate if the container has been sterilised. The indicator means is preferably a replaceable vapour permeable closure.

Moreover, the provision of a collapsible or deformable portion allows the equipment inside the container to be easily accessed during a surgical operation. In particular, in use in a surgical operation, the non-sterile nurse removes the closure and then collapses or deforms the collapsible or deformable portion of the container. Consequently, the sterile piece of medical or surgical equipment inside the container is at least partially exposed and the sterile nurse can grasp the exposed part and remove the sterile equipment from the container. The container of the present invention

allows the sterilized equipment to be removed therefrom without the non-sterile nurse having to touch the sterile inner part of the container and the sterile equipment inside the container. The sterile nurse does not have to touch the non-sterile outer surface of the container.

The collapsible or deformable portion of the container is preferably made to collapse or deform in a concertina fashion. To this end, the collapsible or deformable portion may include a plurality of fold lines or lines of weakness extending around the container. It will be appreciated that the present invention also includes any other collapsible or deformable portion. For example, the container may include a portion made from a pliant material or include a portion able to be folded back upon itself, or include a corrugated or fluted portion.

The collapsible or deformable portion may comprise a portion of the container at or adjacent to the first end of the container which is adapted to fold downwardly upon the container. This action will move the first and second ends relatively closer together.

The container may be made from any material that is resistant to the conditions encountered in sterilization. The container is preferably made from suitable plastics material. Polyetheylene is particularly preferred. The container may be made in one piece or it may be made from two or more pieces joined together. Containers of varying size may be made to accommodate telescopes or other instruments of varying size. The inside surface of the container is preferably hydrophobic or treated to be hydrophobic. The container may also be gamma-ray permeable to leave open the possibility of using in gamma-ray sterilization.

In another aspect, the present invention provides a container for use in sterilizing an object, the container adapted to receive the object, the container having an internal volume for receiving the object, and an opening through which the object can be inserted into the container, characterized in that the container is adapted to be separated into at least two parts to thereby expose the object.

Preferably, the container has a first end and a second end and a portion of the container between the first end and the second end is adapted to be breakable to thereby enable separation of the container into at least two parts. The breakable

portion may comprise one or more lines of weakness, or a portion made of a low-breaking point material.

The container is preferably provided with a closure means to close the opening in the container. The closure means is preferably a tamper proof or tamper-evident closure. More preferably, the closure means cannot be removed from the container once it has been fitted thereto. If the closure means is removed, it should be apparent that the closure means has been removed, to thereby indicate that sterility has been compromised.

The container preferably has a vapour permeable portion. The vapour permeable portion may be part of the container, or it may be part or all of the closure.

The vapour permeable portion may be as described with reference to the other aspects of the invention described herein.

The closure means may be as described with reference to the other aspects of the present invention.

In this aspect of the invention, the container with an object inside is sterilized. After sterilization, use of the container in an operating theatre requires the non-sterile nurse to grasp the object in both hands and break the container into the at least two portions. The sterile nurse can then remove the object from the portion that still holds the object.

In all aspects of the present invention, the container may further comprise a sheet-like material adapted to drape over the object upon removal of the object from the container. The sheet-like material may be mounted to the inside of the container. Alternatively, the sheet-like material may be mounted to the closure means. The sheet-like material is preferably a sheet of gauze or other medical fabric. By draping over the object as it is removed from the container, the sheet-like material provides a further barrier between the object and the non-sterile part of the container to further reduce the chance of compromising sterility.

A preferred embodiment of the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 shows a perspective side view of a container in accordance with the present invention;

Figure 2 shows a cross-sectional side view of the container of Figure 1 with an endoscopic telescope positioned within the container;

Figure 3 shows a cross-sectional side view of the apparatus of Figure 2 but showing how the endoscopic telescope is removed from the container;

Figure 4 shows an end view of one embodiment of a container in accordance with the present invention;

Figure 5 shows a modification of the container of Figure 1 having pull rings to simplify collapse of the container;

Figure 6 shows a container in accordance with another embodiment of the present invention;

Figure 7 shows a side view in cross-section of an elongated part of a container in accordance with another embodiment of the present invention;

Figure 8 shows a side view in cross-section of an enlarged part of a container in accordance with another embodiment of the present invention; and

Figure 9 shows side view in cross-section of the container made from the parts of Figures 7 and 8. In Figure 9, an endoscopic telescope is also shown inside the container.

The embodiment of the present invention shown in the attached figures is particularly useful in the sterilization of medical or surgical equipment by autoclaving and for convenience the embodiment of the invention will be described with reference to autoclaving. However, it is to be understood that the present invention is equally applicable to use in other sterilization methods besides autoclaving and that the invention should not be considered to be limited solely to autoclaving. Furthermore, the embodiment shown in the attached figures relate to the sterilization of an endoscopic telescope. Again, it will be appreciated that medical or surgical equipment other than endoscopic telescopes may be sterilized in accordance with the present invention and that it is not intended that the present invention be restricted to the sterilization of endoscopic telescopes.

Turning now to consider Figure 1, a container 1 in accordance with the present invention includes an elongate tubular portion 2, and an enlarged portion 3 at the proximal end of the container. The enlarged portion 3 includes an open end 4 defined

by a rim 5. The container also includes a second, closed end 6 that is located generally opposite the open end 4. The enlarged portion 3 includes a series of fold lines or lines of weakness 7, indicated in dashed outline. The fold lines or lines of weakness 7 allow the enlarged portion 3 to be collapsed upon itself in concertina like fashion, as best shown in Figure 3.

Turning now to consider Figure 2, which shows a cross-sectional view of the container of Figure 1 as filled with an endoscopic telescope, the container 1 of Figure 2 is shaped to receive an endoscopic telescope 8. The endoscopic telescope 8 includes an elongate portion 9 that extends into the elongate portion 2 of container 1. The endoscopic telescope 8 also includes a proximal end 10 that includes a housing 11 for housing optical components and a clamping means 12. As can be clearly seen from Figure 2, the enlarged end 10 of the endoscopic telescope 8 fits inside the enlarged portion 3 of container 1. To assist in inserting the elongate portion 9 of endoscopic telescope 8 into the elongate portion 2 of endoscopic telescope 1, a tapered guide 13 is fitted to the elongate part 2 of the container 1. The elongate part 2 of container 1 is also fitted with sponge holder 13 and sponge padding 14 to provide support for the end of the endoscopic telescope.

After the endoscopic telescope 8 is inserted through the opening 4 in container 1, vapour permeable closure 15 is affixed to the opening to thereby close the opening 4. In the embodiment shown in the figures, the vapour permeable closure 15 comprises a paper or paper base material that is affixed to the container by adhesive 16 that contacts the rim 5 of the opening 4. Although Figure 2 shows the water vapour permeable closure 15 extending beyond the edges of the container, it will be appreciated that the vapour permeable closure 15 may sit flush with the edges of the container. The vapour permeable closure is preferably water vapour permeable and is also preferably permeable to liquid water.

In order to sterilize the endoscopic telescope, the container 1 having the endoscopic telescope 8 placed therein and vapour permeable closure 15 affixed thereto is placed inside an autoclave. Operation of the autoclave causes steam and possibly water to pass through vapour permeable closure 15 and into the inner volume of container 1. This results in sterilization of the endoscopic telescope. At the end of the

autoclave cycle, the autoclave is turned off and is depressurised. Any water that has condensed inside container 1 can run out of the container and permeate through permeable closure 15. This leaves the inside of the container 1 substantially dry. In this regard, it will be noted that although lines of weakness or fold lines 7 are formed in the enlarged portion of the container 1, in the uncollapsed state shown in Figures 1 and 2, the inside of the enlarged portion 3 of container 1 presents a substantially smooth surface that does not collect any condensed water.

Once the container shown in Figure 2 is removed from the autoclave, it may be stored for future use. The inside of the container remains sterile because permeable closure 15 prevents the entry of bacteria into the container. Moreover, the container 1 provides protection for the endoscopic telescope 8 against bumps and rough handling.

When it is time to use the endoscopic telescope 8 in a surgical procedure, the container 1 containing endoscopic telescope 8 is transferred to the operating theatre. In the operating theatre, a non-sterile nurse picks up the container 1 and collapses or deforms the enlarged portion 3 by pulling the enlarged portion 3 towards the closed end 6. It will be appreciated that the permeable closure 15 is either removed prior to deforming the enlarged portion 3 or is removed by the act of deforming the enlarged portion 3. As best shown in Figure 3, deforming the enlarged portion 3 by urging it towards the second, closed end 6 causes the open end 4 to move relatively towards the second, closed end 6. The enlarged portion 3 collapses or deforms in a concertina like manner around fold lines or lines of weakness 7. This has the effect of exposing enlarged end 10 of endoscopic telescope 8 from the open end 4 of container 1. A sterile nurse can then grasp the end 10 of endoscopic telescope 8 and withdraw the endoscopic telescope 8 from the container 1. As the end 10 of endoscopic telescope 8 is sterile, the sterile nurse does not compromise the sterile field in the operating theatre by this operation.

Once the endoscopic container 8 has been removed from the container 1, the container may either be washed ready for resterilization or simply discarded.

The container 1 may have any suitable profile. In one embodiment, best shown in Figure 4, the enlarged portion 3 of container 1 has a generally square or rectangular profile, with the rim 5 of open end 4 defining that particular profile. The advantage of

the profile shown in Figure 4 is that the container 1 is then stackable on other similar containers for ease of storage. However, it will be appreciated that any other profile for the container may be used.

In order to improve the operation of collapsing the enlarged portion 3 of the container 1, as best shown with reference to Figure 3, the enlarged portion 3 of container 1 may be provided with ring pulls 17, 18 for grasping by the non-sterile nurse. This is best shown in Figure 5. Alternatively, pull tabs may be provided.

The container 1 shown in the embodiment of the present invention may be integrally formed as a single unit. Alternatively, the container 1 may be formed from two or more parts that are joined together. For example, the elongate portion 2 of container 1 may comprise an extruded tube. Closed end 6 may be attached to one end of the extruded tube, for example, by ultrasonic welding or by use of a suitable water tight adhesive. Similarly, enlarged portion 3 may be attached to the other end of extruded portion 2, again by ultrasonic welding or by use of a suitable adhesive.

Turning now to figure 6, the container 20 comprises an elongated barrel 21 and an enlarged end portion 22. Enlarged end portion 22 has an open end that is adapted to be closed by screw cap 23. Screw cap 23 has a peel paper seal 24 adhered thereto. The peel paper seal 24 closes an opening in screw cap 23. Although not shown in figure 6, screw cap 23 crews on to a threaded portion formed on the end of container 20. The screw cap 23 is also provided with a tamper proof or tamper evident seal 25. This seal may be similar to those found on bottles of fruit juice. The tamper proof or tamper evident seal provides a further level of security to the medical staff that the contents of the container are sterile and have not been opened following sterilisation.

The peel paper seal also may include a colour change portion that changes colour, preferably irreversibly, under sterilising conditions. This portion gives an indication to the medical staff as to whether the contents of the container have been sterilised.

The enlarged end portion 22 also includes finger indentations 26, 27 that are designed to assist in grasping and using the container.

The second end 28 of the container has an opening formed therein and a paper seal 29 is applied over that opening. The paper seal 29 allows air to permeate

therethrough and this then permits drying of any water that may have condensed inside the container during sterilization.

The container 20 shown in figure 6 is also provided with corrugations 30 that allow the pull back exposure of the telescope. Corrugations 30 are provided in the barrel of the container. In particular, the container can be collapsed by moving the ends of the container towards each other, which thereby causes the corrugations to collapse upon themselves.

The container 20 shown in figure 6 is preferably made from polyetheylene, which is a heat resistant plastic. However, any other heat resistant material may be used as the material of construction for the container. The screw cap 23 may be made of nylon or polycarbonate to enhance adhesion of the peel paper seal 24 to the screw cap. The peel paper seal applied to the screw cap may have printing thereon to advise users of the contents of the container and also to include information such as the date the contents were sterilized, the sterilizing conditions and the operator who performed the sterilization procedure.

Turning now to the embodiment of the present invention shown in Figures 7 to 9, the container 30 comprises a first part 31 (best shown in Figure 8) and a second part 32 (best shown in Figure7). The first part 31 includes a portion of enlarged diameter 33 and an outwardly extending projecting part 34 of relatively small diameter. The first part 31 has a large opening 35 through which an endoscopic telescope can be inserted and a small opening 36 in a generally opposed end thereof. The barrel portion of an endoscopic telescope can extend through opening 36.

The first part 31 is preferably made from a plastics material. Suitably, first part 31 is made by blow molding or injection molding.

The elongated portion 34 of the first part 31 may suitably comprise a relatively thin walled section of little strength. This allows the elongated section 34 to be readily deformed in use.

The first part 31 may also be provided with an outwardly extending ridge 37, which ridge facilitates the fitment of a cap or lid over the opening 35.

The second part 32, best shown in Figure 7, comprises a closed end 38, an elongated hollow portion 39 and an open end 40. Open end 40 has a flange 41

projecting radially outwardly therefrom. The second part 32 includes a corrugated portion 42 which allows the closed end 38 to be displaced relatively towards the open end 40.

In order to produce the final container 30, as shown in Figure 9, the elongated part 34 of the first part 31 is inserted into the hollow elongated part 39 of the second part 32. The flange 41 of the second part 32 then comes into abutment with wall portion 33. The first part 31 is then joined to the second part 32 by ultrasonically welding the flange 41 to the wall portion 43. Second part 32 is suitably made from a rigid plastics material and second part 32 may be made by blow molding or injection molding. Second part 32 provides a degree of strength and reinforcement to elongated part 34 of first part 31.

In use of the container 30 shown in Figure 9, and endoscopic telescope 45 having an elongated barrel 46 is inserted through large opening 35. As can be seen from Figure 9, the length of the container 30 is slightly longer than the length of the endoscopic telescope 45. Once the endoscopic telescope 45 has been inserted into container 30, a lid or cap 46 having a vapour permeable part 47 is affixed to the container 30. Lid or cap 46 is arranged such that it cannot be removed from the container 30 or, if it is removed, it is evident that the container 30 has been tampered with.

Lid 46 suitably comprises an annular part 48 having a flange 49 depending therefrom. Flange 49 has fixing means for fixing the lid to the complementary shaped lugs 37 on container 30. The vapour permeable part 47 of lid 46 suitably comprises a vapour permeable paper that is joined to the annular part 48 of the lid or cap 46.

Once the lid 46 has been placed on the container 30, the container 30 is placed into a sterilizing environment, for example into an autoclave or into a gas sterilizer that uses ethylene oxide or a STERAD (a proprietary gas sterilizing system marketed by Johnson & Johnson). The vapour permeates through the vapour permeable portion 47 of lid 46 to thereby sterilize the endoscopic telescope located inside the container 30. Once the sterilizing cycle has been completed, the container 30 is removed from the sterilizing apparatus and placed into storage until the endoscopic telescope 45 is required for use. As can be seen from Figure 9, the container fully surrounds the

sterilized endoscopic telescope and seals the endoscopic telescope 45 from the outside environment. Accordingly, the endoscopic telescope remains in a sterile condition whilst it is in the container 30. When it comes time to use the endoscopic telescope, it is taken to the operating room. There, the non-sterile nurse holds the container 30 in both hands, with one hand being on first part 31 and the other hand being on second part 32. The non-sterile nurse pushes the closed end 38 towards the first part 31. This results in the corrugated portion 42 collapsing upon itself and the closed end 38 moving relatively towards the first part 31. The closed end 38 then comes into contact with the end of the barrel 46 of the endoscopic telescope 45. This pushes the endoscopic telescope 45 to the right (as shown in Figure 9) and as a result the endoscopic telescope 45 breaks through the vapour permeable section 47 of lid 46. Once the endoscopic telescope 45 has been exposed, a sterile nurse grasps the end 50 of the endoscopic telescope and fully withdraws the endoscopic telescope 45 from the container 30. Container 30 may then be discarded.

The cap 46 may be used to record information for hospital or surgical use, including sterilization information (eg date and conditions), patient information etc.

Where the cap includes the facility for recording patient information, the vapour permeable part 47 of cap 46 may be removed from the container and placed on the patient's chart.

The vapour permeable part 47 is most preferably a peel-paper that is applied to the annular part 46 of the cap 45.

Although the embodiment described with reference to Figures 7 to 9 shows the first part 31 and second part 32 connected to each other by welding, it will be apparent that any other joining technique may also be used. For example, an adhesive or adhesive tape may be used.

The first and second parts may suitably be made from polyethylene, polypropylene or other suitable plastics material. The walls of the container 30 may be at least partially translucent or transparent in order to enable visual inspection of the contents of the container. Alternatively, the contents of the container may be written on the peel-paper 47.

In a modified method of using the apparatus shown in Figures 7 to 9, the endoscopic telescope 45 may be placed in the first part 31 prior to joining the first part 31 and second part 32 together. The distal end of endoscopic telescope 45 may protrude beyond open end 36 of first part 31. Lid 46 would then be fitted. The second part 32 would be placed over the outwardly projecting part 34 of first part 31 to thereby fully enclose the telescope 45 inside the container 30 and the first and second parts 31, 32 would then be joined together, eg, by welding, by adhesive, by tape, etc.

The container of the present invention may be made in a number of different lengths to suit different types of telescopes for sterilization. It will also be appreciated that although figures 1 to 6 show the invention used in conjunction with the sterilization of endoscopic telescopes, the invention may be extended to cover the sterilization of a number of different types of medical apparatus.

It will be appreciated that the invention described herein is susceptible to variations and modifications other than those specifically described. It is to be understood that the invention encompasses all such variations and modifications that fall within its spirit and scope.

Claims:

1. A container for use in sterilizing an object, the container adapted to receive the object, the container having a first end having an opening to allow positioning of the object in the container, a second end located generally opposite the first end and wherein at least a portion of the container is adapted to be collapsed or deformed whereby the first end and the second end are moved relatively towards each other.

2. A container as claimed in claim 1 further comprising closure means for closing the opening in the first end, said closure means including a vapour permeable portion.

3. A container as claimed in claim 2 wherein the closure means comprises a vapour permeable closure for affixing to a rim of the opening.

4. A container as claimed in claim 3 wherein the vapour permeable closure comprises a peel paper or a vapour permeable membrane.

5. A container as claimed in claim 2 wherein the closure means comprises a lid or cap having a vapour permeable portion.

6. A container as claimed in claim 5 wherein the lid or cap comprises an annular member having a flange depending therefrom, said flange having interengaging means for engaging with corresponding interengaging means on the container to thereby hold the lid or cap on the container, and a vapour permeable member spanning an opening in the annular member.

7. A container as claimed in claim 5 or claim 6 wherein the lid or cap is a tamper-proof or tamper-evident lid or cap.

8. A container as claimed in any one of the preceding claims wherein the collapsible or deformable portion comprises a fluted or corrugated portion.

9. A container as claimed in any one of the preceding claims wherein the container is relatively enlarged at the first end.

10. A container as claimed in any one of the preceding claims wherein the second end of the container comprises a closed end.

11. A container as claimed in any one of claims 1 to 9 wherein the second end is closed by a vapour permeable means.

12. A container as claimed in any one of the preceding claims wherein the collapsible or deformable portion is produced from a relatively rigid material.

13. A container as claimed in any one the preceding claims comprising a first portion and a second portion joined together to form the container.

14. A container as claimed in claim 13 wherein the first portion includes the deformable or collapsible portion.

15. A container as claimed in claim 13 wherein the second portion includes the deformable or collapsible portion.

16. A container as claimed in claim 13 wherein the first portion and the second portion each contain a deformable or collapsible portion.

17. A container as claimed in any one of the preceding claims for use in sterilizing an endoscopic telescope comprising an elongated part for

receiving a barrel of an endoscopic telescope and an enlarged part depending from the elongated part.

18. A container as claimed in claim 17 wherein the elongated part includes the collapsible or deformed portion.

19. A container as claimed in claim 17 or claim 18 comprising a first part and a second, elongated part joined to the first part, the first part being of relatively enlarged diameter with respect to the elongated part.

20. A container as claimed in claim 19 wherein the first part includes an outwardly projecting part that fits relatively snugly with the second, elongated part such that the outwardly projecting part of the first part overlaps with at least some of the second, elongated part.

21. A container as claimed in claim 20 wherein the second part has an open end for receiving the outwardly extending part of the first part and a closed end, said closed end comprising the second end of the container.

22. A container as claimed in claim 20 or claim 21 wherein the first part has an open end in the outwardly extending part through which a barrel of an endoscopic telescope can pass and a large opening in the enlarged diameter portion.

23. A container for use in sterilizing an object, the container adapted to receive the object, the container having an internal volume for receiving the object and an opening through which the object can be inserted into the container, characterized in that the container is adapted to be separated into at least two parts to thereby expose the object.

24. A container as claimed in claim 23 in which the container has a first end and a second end and a portion of the container between the first and second ends is adapted to be breakable to thereby enable separation of the container into at least two parts.

25. A container as claimed in claim 24 wherein the breakable portion comprises one or more lines of weaknesses or a portion made of a low-breaking point material.

26. A container as claimed in any one of claims 23 to 25 wherein the container is provided with a closure means.

27. A container as claimed in claim 26 wherein the closure means is a tamper proof or tamper evident closure

28. A container as claimed in any one of claims 23 to 26 wherein the container has a vapour permeable portion.

29. A container as claimed in claim 26 or 27 wherein the closure means includes a vapour permeable portion.

30. A container as claimed in any one of the preceding claims further comprising a sheet-like material adapted to drape over the object upon removal of the object.

31. A container as claimed in claim 30 wherein the sheet-like material is mounted to the inside of the container.

32. A container as claimed in claim 30 wherein the sheet-like material is mounted to a closure means.

33. A container as claimed in any one of claims 30 to 32 wherein the sheet-like material is a sheet of gauze or other medical fabric.

34. A container as claimed in claim 1 wherein the deformable or collapsible portion comprises a portion of the container at or adjacent to the first end of the container which is adapted to fold downwardly upon the container.

35. A method for sterilizing an object comprising placing the object into a container, the container having an opening through which the object is inserted, the container having at least a portion which is adapted to be deformed or collapsed, closing the opening with a vapour permeable closure and placing the container in a sterilizing environment for sufficient time to sterilize the object.

36. A method as claimed in claim 35 using a container as claimed in any one of claims 1 to 33.

37. A method as claimed in claim 35 or claim 36 wherein the object is removed from the container by collapsing or deforming the collapsible or deformable portion to thereby reduce an inner volume of the container and force the object to break open the vapour permeable closure and extend at least partly out of the container.

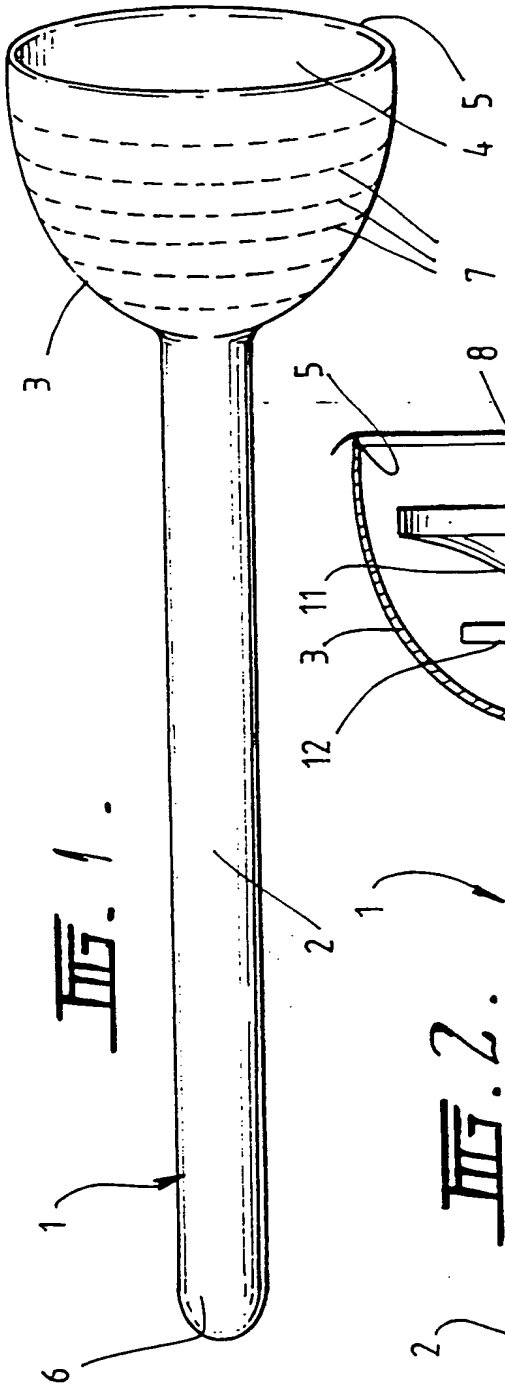

FIG. 1.

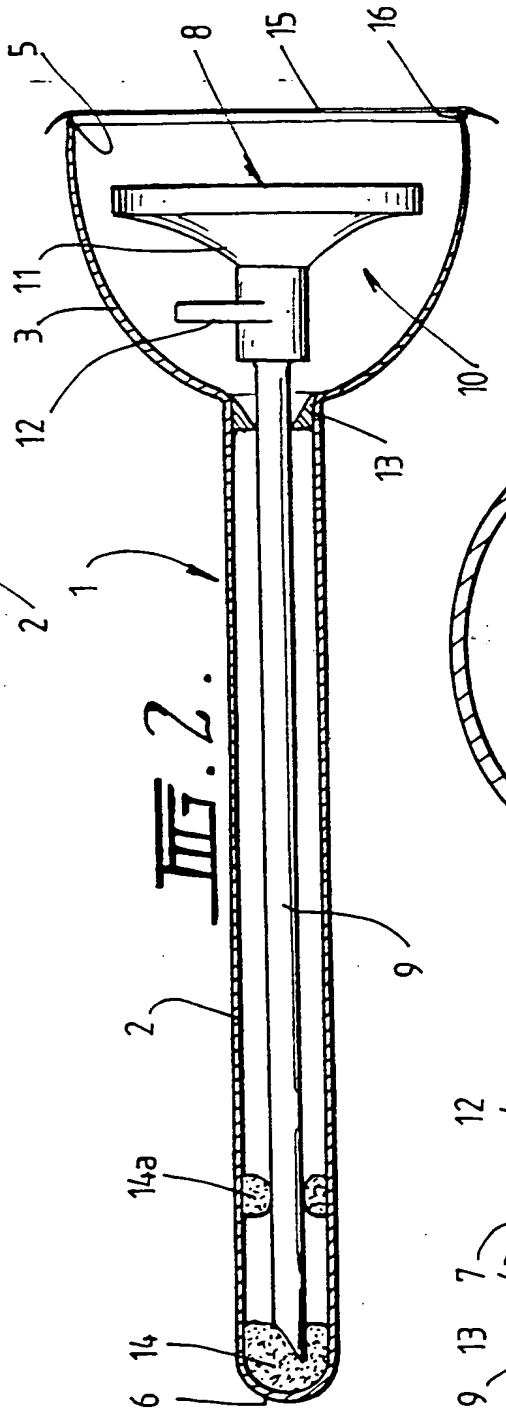

FIG. 2.

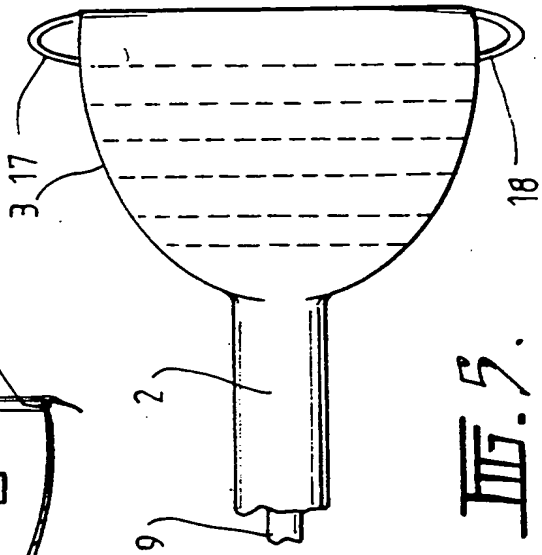

FIG. 5.

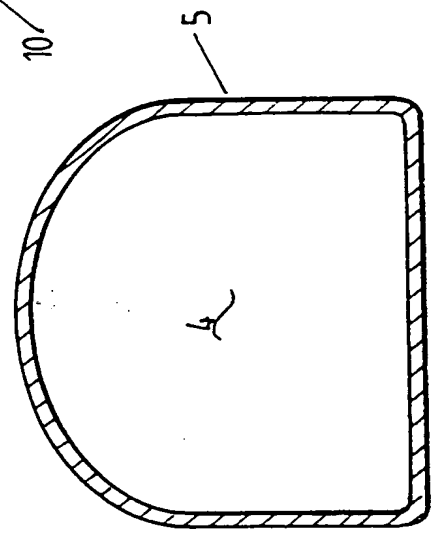

FIG. 4.

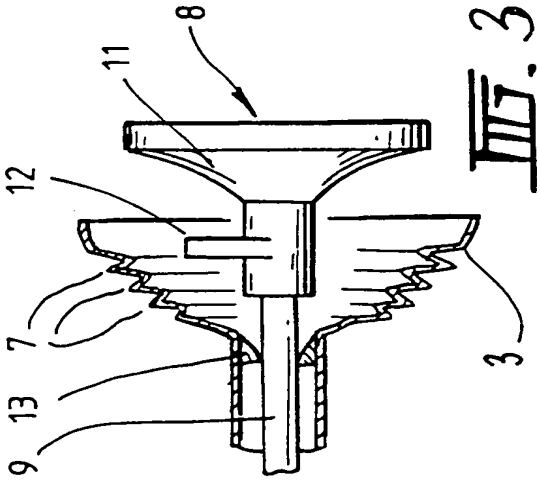

FIG. 3.

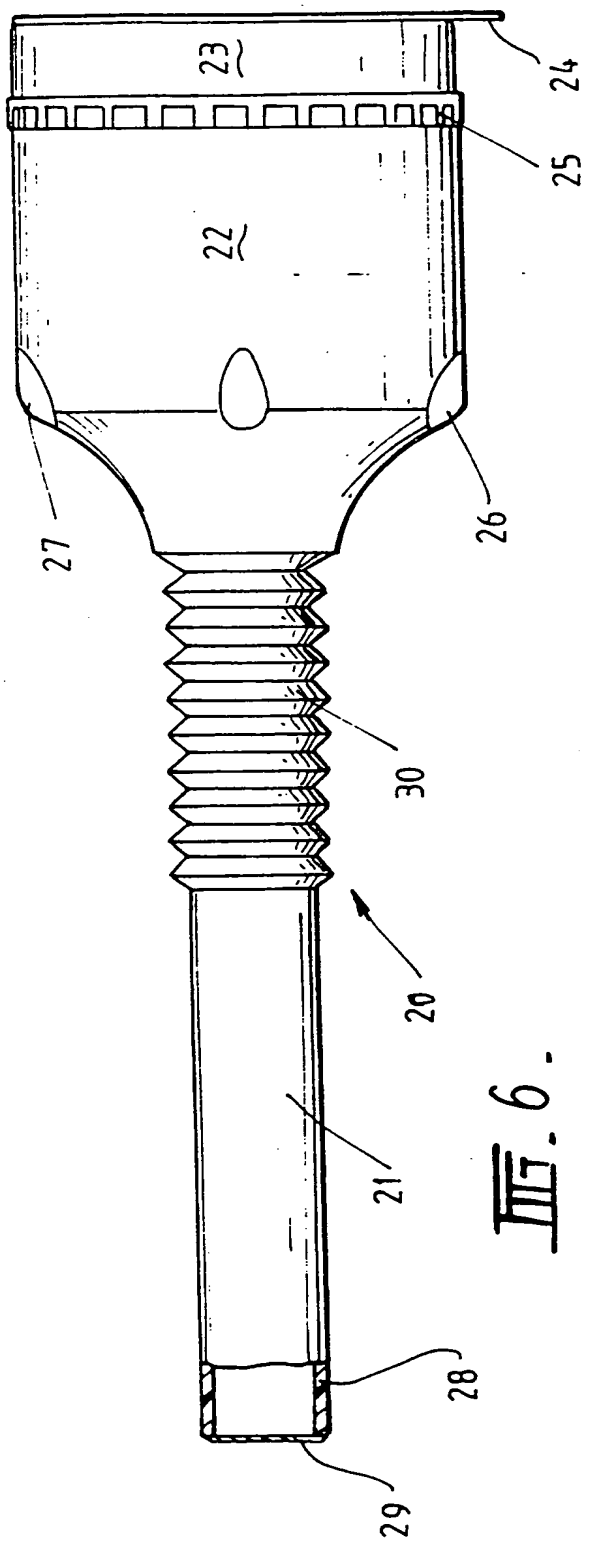
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FIG. 6.

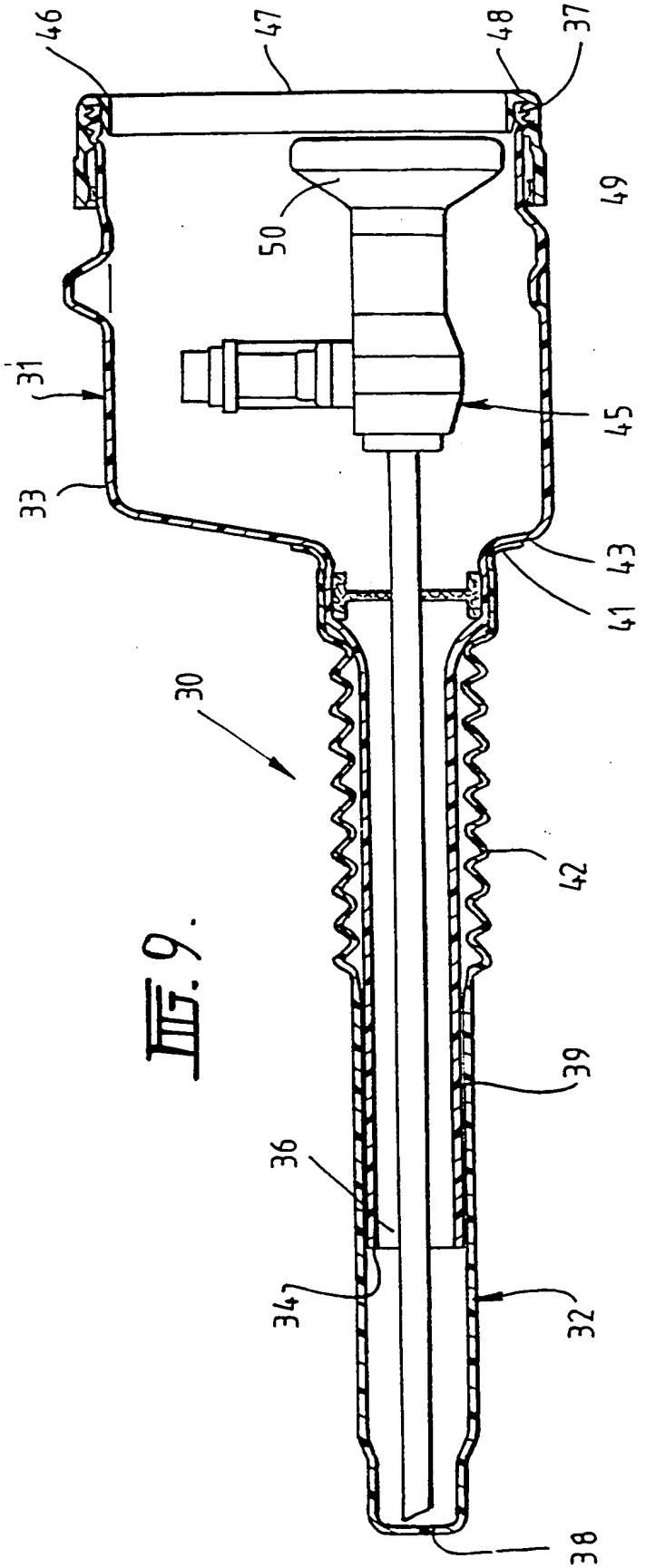
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FIG. 9.

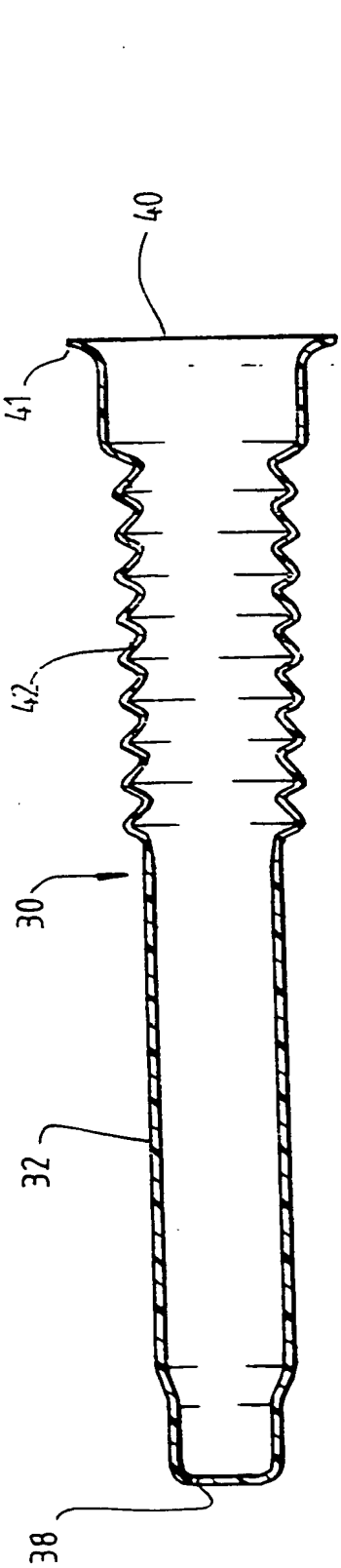

Fig. 7.

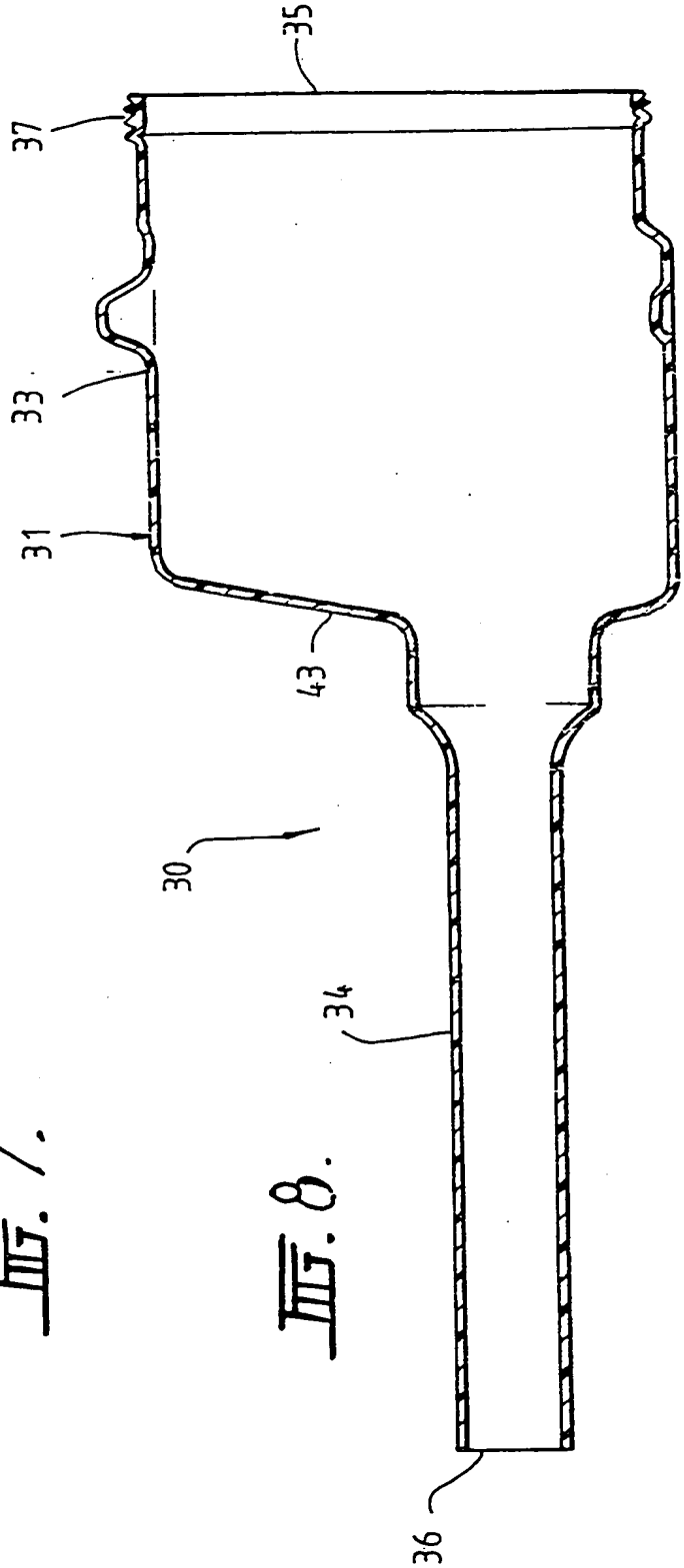

Fig. 8.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/00459

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. [7]: A61L 2/26, 2/07, 2/20; B65D 21/08, B65B 55/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC[6]: A61L 2/- ,B65D 21/08, and B65B 55/14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU: IPC AS ABOVE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT:A61L 2/ and (collaps: or deform: or compress: or distort:) or (ii) B65 D 21/08 or B65B 55/- and (collaps: or compress: or bellow: or concertina)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA 2230264 A , (L. Parrot) 14 October 1998 Whole document	1, 8, 10, 12-15, 23, 26, 34
X	US 4773458 A (W. Touzani et al) 27 September 1998 Whole document	1, 8, 10, 12, 13-22, 26, 27
X	FR 2654413 A (P. Poggi) 17 May 1991 Whole document	1, 8, 10, 12, 13-22, 26, 27

[X] Further documents are listed in the continuation of Box C

[X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
5 July 2000	12 JUL 2000
Name and mailing address of the ISA/AU	Authorized officer
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	G.J. McNEICE Telephone No : (02) 6283 2055

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/00459

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 08230882 A (KANEISHI SUZUYUKI) 10 September 1996 Abstract	1, 8, 10, 12, 13-22, 26, 27
X	JP 08091339 A (NARA TOSHIOMI) 9 April 1996 Abstract	1, 8, 10. 12, 13-22, 26, 27
X	US 4362241 A (R. Williams) 7 December 1982 Whole document	1, 8, 10, 12, 13-22, 26, 27
X	WO 9426633 A (SUBMIN LIMITED) 24 November 1994 Whole document	1, 8, 10, 12, 13-22, 26, 27
X	AU 17399/95 A (DOWBRANDS INC.) 14 September 1995 Pages 2-11	1, 9, 10, 12-22, 34
P, X	AU 35254/99 A (A. Keribin) 16 November 1999 Whole document	1, 9, 10, 12-22, 34

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/00459

Box I **Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos : **23 - 29 and claim 33 as appended to any of these claims**

because a search of these claims is considered to be economically infeasible as these claims relate to any two part container . They therefore do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out.:

3. ☐ Claims Nos :

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II **Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00459

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	4773458	AU	75615/87	BR	8703073	CA	1308671
		CN	87107832	DD	275029	DK	3661/87
		EP	263536	FI	873117	HU	52441
		IL	84115	MC	1933	NO	872935
		PL	268115	PT	85324	WO	8802726
		YU	1867/87	ZA	8707526		
WO	9426633	EP	697987	FR	2705326		
AU	17399/95	WO	9524347				
AU	35254	WO	9956454	FR	2778167		

END OF ANNEX